

18. Discuss the following reactions

- (a) Sommelet-Hauser
- (b) Von Richter
- (c) Smiles rearrangements (4+3+3)

19. (a) Discuss the Asymmetric synthesis with suitable examples. (5)

(b) What is R, S notation? Explain with examples. (5)

20. (a) Discuss the conformational analysis of cyclohexane. (5)

(b) Discuss the Octant rule with examples. (5)

NOVEMBER/DECEMBER 2024

**23PCH11 — ORGANIC REACTION
MECHANISM – I**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is the Taft equation?
2. What is a reaction coordinate diagram?
3. State S_E^i mechanism.
4. What is the Friedel-Crafts alkylation?
5. Define S_N^i reaction.
6. What is the Bucherer reaction?
7. Define the CIP rule.
8. What is prochirality?
9. What is conformation analysis?
10. Define Brett's rule.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Explain Hammond's postulate with suitable examples.

Or

- (b) Explain the Hammett equation with suitable examples.

12. (a) Discuss the S_E^1 and S_E^2 mechanisms with suitable examples.

Or

- (b) Explain the orientation and reactivity of nitration in disubstituted phenol.

13. (a) Explain the aromatic nucleophilic substitution reaction.

Or

- (b) What are the factors affecting the aliphatic nucleophilic substitution reaction? Explain.

14. (a) Discuss the stereochemistry of allenes and spiranes.

Or

- (b) What are enantiotropic and diastereotropic atoms? Explain.

15. (a) Discuss the neighboring group participation with examples.

Or

- (b) Discuss the axial haloketone rule.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. (a) What are the methods involved in determining the reaction mechanism? Explain.

- (b) What is the Cross-over experiment? (8+2)

17. (a) Discuss the aromaticity of benzenoid and non-benzenoid compounds. (2+2)

- (b) Friedel-Crafts alkylation and acylation reaction. (3+3)